

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-21 are pending in the present application. Claim 21 is added by the present amendment.

In the outstanding Office Action, Claims 1-20 were rejected under 35 U.S.C. §102(b) as anticipated by Yoshioka et al. (U.S. Patent 5,461,357, herein “Yoshioka”), which is respectfully traversed for the following reasons.

Briefly recapitulating, independent Claim 9 is directed to an image processing apparatus that includes a camera configured to input a plurality of frame images serving as video images, a tracking unit, and a detector. The tracking unit detects a straight-line component in a specific direction from each frame image in the plurality of frame images and generates an obstacle candidate area as an image area in a vicinity of the straight-line component and produces a tracking result for an obstacle candidate area. The detector determines, using the tracking result of three or more obstacle candidate areas, whether the three or more obstacle candidate areas belong to a specific plane and detects an obstacle based on this determination. Independent Claims 1 and 17 recite similar features as Claim 9.

In a non-limiting example, Figure 1 shows the camera 10, the tracking unit 12, and the detector 14.

Turning to the applied art, Yoshioka discloses an obstacle detection device for a vehicle that includes an area determining section, a split section for splitting the area into a plurality of small split zones, a detecting section for detecting an obstacle image in each of the small split zones, an inferring section for inferring a path of the vehicle in the obstacle detection area, and a judging section for judging a rank of danger of an obstacle in the

detection area. More specifically, Yoshioka shows in Figure 17 that a vehicle 14 is provided with a camera 28 that records a lane image ahead of the vehicle.

The outstanding Office Action asserts that camera 28 of Yoshioka corresponds to the claimed camera for inputting a plurality of frame images and also to the claimed tracking unit configured to detect a straight-line component, as noted in the last full paragraph on page 2 of the outstanding Office Action. Figure 17 of Yoshioka shows only the camera 28 discussed above and Figure 18 shows that based on a lane image detected by camera 28, a vehicle location is determined. In other words, Yoshioka discloses that camera 28 **records** at most a straight-line component (the center line of the road) but does not **detect** a straight-line component to generate an obstacle candidate area.

In addition, it is noted that the outstanding Office Action rejected the claims based on a §102 rejection, which requires that each claimed feature is shown in the applied reference. However, as discussed above, the outstanding Office Action considers that camera 28 of Yoshioka corresponds to both the claimed tracking unit and the claimed camera, which is improper.

Further, the outstanding Office Action asserts that Yoshioka discloses at column 1, line 59 to column 52, line 34, a detector configured to determine, using the tracking result of three or more obstacle candidate areas, whether the three or more obstacle candidate areas belong to a specific plane. However, Yoshioka discloses in that paragraph only that a detection unit is constituted by a single scanning laser sensor and it is not clear how a scanning laser sensor determines whether the three or more obstacle candidate areas belong to a specific plane. In addition, Yoshioka is silent about using three or more obstacle candidate areas.

In this respect, zones S1 and S2 shown in Figures 14(a)-(b) of Yoshioka, which are asserted to correspond to the claimed obstacle candidate areas, are defined as areas scanned

by a laser (see Yoshioka at column 4, lines 65-67). On the contrary, the apparatus of Claim 9 tracks an obstacle candidate area in images succeeding each frame image in the plurality of frame images and the obstacle candidate area is in a vicinity of the straight-line component.

Accordingly, it is respectfully submitted that independent Claims 1, 9, and 17 and each of the claims depending therefrom patentably distinguish over Yoshioka.

New Claim 21 has been added so as to set forth the invention in a varying scope and Applicants respectfully submit that new Claim 21 finds support in the originally filed specification. New Claim 21 is similar to Claim 1 except that it recites means for detecting plural straight-line components by applying an edge-detection filter, means for tracking an obstacle candidate area in an image succeeding each frame in the plurality of frame images based on information extracted by image processing and producing a two-dimensional position in the image as a tracking result for each obstacle candidate area, and means for determining, using the change of relative two-dimensional positions of three or more obstacle candidate regions between two or more image frames in the plurality of image frames, whether the three or more obstacle candidate areas belong to a specific plane. These features are neither taught nor suggested by Yoshioka.

Accordingly, it is respectfully submitted that new Claim 21 further patentably distinguishes over Yoshioka.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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